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ABSTRACT

The 1997 Oregon Technology Plan sets a course for Oregon and its Department of Education in using technology to improve student learning, manage resources, and increase accountability. It supports the integration of instructional and administrative technology to help achieve the goals of Oregon's school improvement plan. The Goals of the Technology Plan correspond directly to the four national technology goals intended to improve education by addressing issues of equipment, connectivity, instruction and professional development. After an overview of the Plan, each of the following goals is outlined in terms of progress and action plans: (1) All Oregon students and teachers will have access to appropriate technology including modern computers; (2) Every school and classroom in Oregon will be connected to the Internet; (3) Effective software and online learning resources will be an integral tool to support the school curriculum in Oregon; and (4) All Oregon K-12 teachers, administrators and staff will have the immediate and specific education and support they need to help students learn through technology including computers and the Internet. The remaining sections focus on: monitoring, evaluation, and reporting; oversight, staffing, and future directions; the budget; and guidance for Oregon local districts in preparing a technology plan. Three tables outline the phases of a model plan, and present a sample worksheet and sample table of contents for a district educational technology plan. Appendices include: (1) Oregon Senate Bill 994-Information Technology Policy; (2) Oregon Benchmarks; (3) ORS Chapter 329; (4) Oregon Common Curriculum Goals, Content Standards, and Performance Standards; (5) 1992 Technology Plan; (6) 1994 Goals Technology Plan; (7) Open System Description and Technology Sub-Committee Report; (8) OITC Description; (9) Action Plan in Technology/Distance Education; (10) Fast Packet Contract; (11) Implementation of Telecommunications Act in Oregon; (12) Innovative Engine Competition; and (13) TigerNet Model. (AEF)

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ED 461 355

Oregon
Educational Technology Plan

January 1997

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I. Overview of the 1997 Oregon Technology Plan

Introduction

The 1997 Oregon Technology Plan (the Technology Plan or the Plan)[1] sets a course for Oregon and the Department of Education (the Department) in using technology[2] to improve student learning, manage resources, and increase accountability; it should be viewed as a working document that will undergo further development and revision over the next few months. The Technology Plan is also intended to provide a framework for Oregon school districts as they develop and implement their own technology plans. Districts, individually or in consortia through education service districts, should find the Technology Plan useful in their work. Additional help is available directly from the Department, education service districts, and the OPEN Instructional Technology Clearinghouse. Further information can be found at the Department's web site (http://www.ode.state.or.us).

The Plan is based on Oregon's wider vision for use of technology, expressed in Senate Bill 994 enacted by the 1995 Legislative Assembly, which established state policy for using information technology to improve economic opportunities and the quality of life for all Oregonians (Appendix A). The Plan incorporates current state policies which are also reflected in the Oregon Benchmarks (Appendix B) for the use of information technology in education, as well as in health care, economic development and government services. The Technology Plan extends the state's vision with strategies for collaborative applications of technology to enhance learning opportunities inside and outside the classroom. The document's design is dynamic in response to the catalytic impact of continually developing technologies.

Implementing the Technology Plan requires a process for developing, coordinating, and supporting the use of technological resources which are integrated with telecommunications infrastructure. Further steps in developing the process are underway as part of NetYear97 and are addressed later in the Plan.

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[1] This is a revision of the Oregon Statewide Technology Plan developed in Fall 1994 as part of the Oregon Department of Education Goals 2000 Proposal to the U.S. Department of Education.

[2] The word "technology" can vary in use and understanding. Basic tools—pencils, chalk and blackboards—represent technology as does scientific equipment like scanning electron microscopes or geographic positioning satellite equipment. In the Technology Plan, technology (sometimes called high technology) broadly refers to systems as well as tools such as calculators, CD ROMs, computers, digital cameras, faxes, graphing calculators, Internet and other on-line services, laser disk players, laser printers, modems, multimedia, music synthesizers, optical character readers, robotics, quicktime movies, scanners, simulation software, telephones, and word processors. In the 21st century, technology will undoubtedly acquire even more interpretations, hence the intention of the Technology Plan is to include and respond to the breadth of the topic.

Technology and the School Improvement Plan

The Technology Plan supports the integration of instructional and administrative technology to help achieve the goals of Oregon's school improvement plan. School improvement in Oregon is guided by the Oregon Educational Act for the 21st Century, state legislation enacted in 1991 and later strengthened by the 1995 Legislative Assembly (Appendix C). See Figure 1. The goals of the legislation are to provide:

- A kindergarten through grade 12 education that demands excellence through a rigorous academic program;
- An education program that equips all students with the information and skills necessary to pursue the future of their choice;
- An educational environment that motivates students to pursue serious scholarship;
- Experiences in applying knowledge and skills and demonstrating achievement; and
- Schools that provide all students with lifelong academic and other skills that will prepare them for the future.

The Technology Plan is intended to promote these goals by:

- Providing all students with opportunities to use technologies to improve their learning by demonstrating content knowledge and performance related to statewide academic benchmarks;
- Providing high quality distance learning opportunities for all schools and communities to support rigorous curricula in core content areas;
- Providing opportunities for students to work with the business community and use state-of-the-art technology;
- Developing systems to profile individual student performance to report school, district, and state achievement; and
- Supporting timely and specific staff development and training opportunities for educational professionals.

The Common Curriculum Goals and the content and performance standards for the Oregon Certificates of Initial and Advanced Mastery are the foundation for the school improvement envisioned in the Oregon Educational Act for the 21st Century (Appendix D). Maintaining a focus on the student content and performance standards that support the two certificates is an essential precondition to realizing the instructional aspects of the Technology Plan. With that focus, application of technology can provide a vehicle that will allow all students to learn and demonstrate their knowledge and skills to high levels.

Figure 1

The Oregonian

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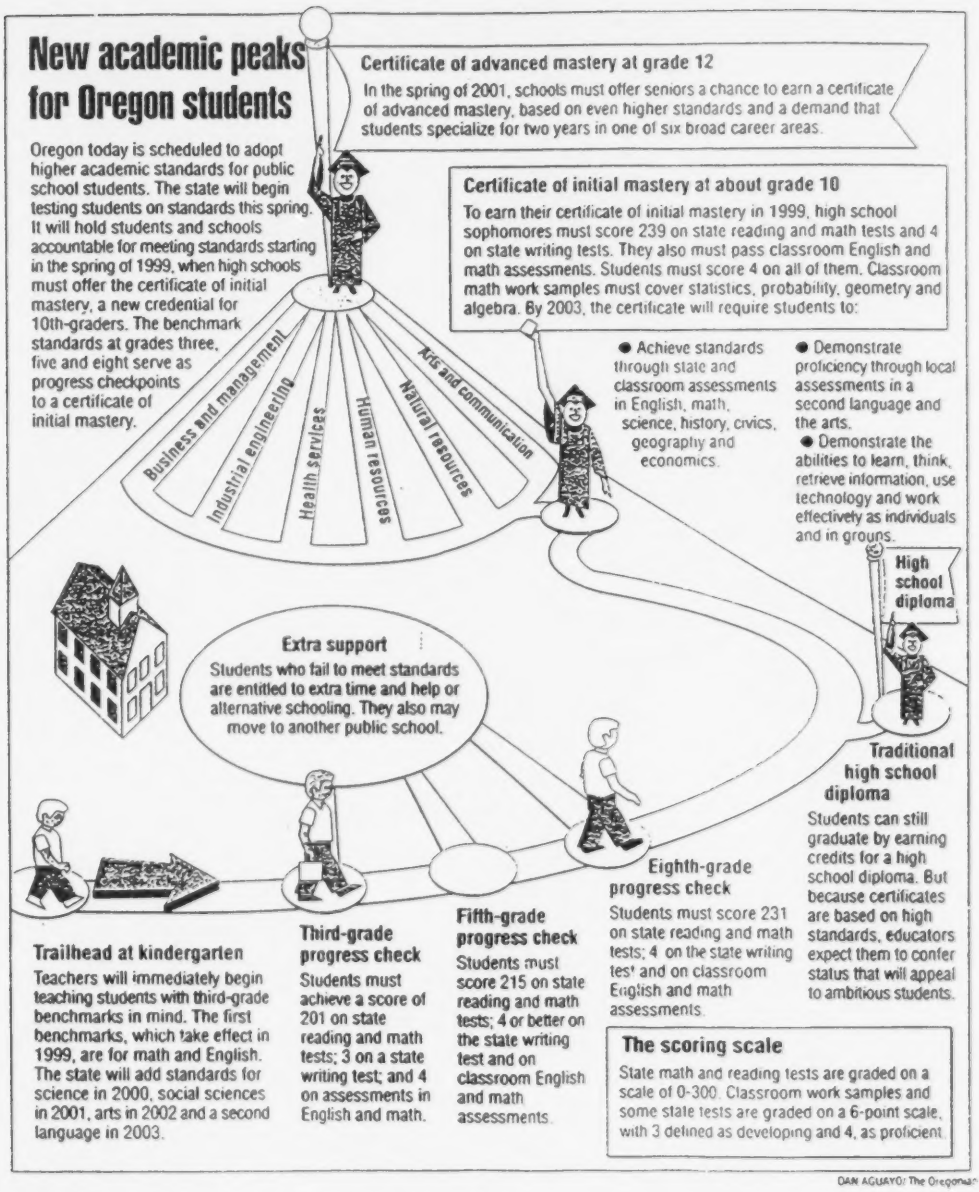
New academic peaks for Oregon students
Oregon today is scheduled to adopt higher academic standards for public school students. The state will begin testing students on standards this spring. It will hold students and schools accountable for meeting standards starting in the spring of 1999, when high schools must offer the certificate of initial mastery, a new credential for 10th-graders. The benchmark standards at grades three, five and eight serve as progress checkpoints to a certificate of initial mastery.
Certificate of advanced mastery at grade 12
In the spring of 2001, schools must offer seniors a chance to earn a certificate of advanced mastery, based on even higher standards and a demand that students specialize for two years in one of six broad career areas.
Certificate of initial mastery at about grade 10
To earn their certificate of initial mastery in 1999, high school sophomores must score 239 on state reading and math tests and 4 on state writing tests. They also must pass classroom English and math assessments. Students must score 4 on all of them. Classroom math work samples must cover statistics, probability, geometry and algebra. By 2003, the certificate will require students to:
● Achieve standards through state and classroom assessments in English, math, science, history, civics, geography and economics.
● Demonstrate proficiency through local assessments in a second language and the arts.
● Demonstrate the abilities to learn, think, retrieve information, use technology and work effectively as individuals and in groups.
Business and management
Industrial engineering
Health services
Human resources
Natural resources
Arts and communication
High school diploma
Extra support
Students who fail to meet standards are entitled to extra time and help or alternative schooling. They also may move to another public school.
Traditional high school diploma
Students can still graduate by earning credits for a high school diploma. But because certificates are based on high standards, educators expect them to confer status that will appeal to ambitious students.
Trailhead at kindergarten
Teachers will immediately begin teaching students with third-grade benchmarks in mind. The first benchmarks, which take effect in 1999, are for math and English. The state will add standards for science in 2000, social sciences in 2001, arts in 2002 and a second language in 2003.
Third-grade progress check
Students must achieve a score of 201 on state reading and math tests; 3 on a state writing test; and 4 on assessments in English and math.
Fifth-grade progress check
Students must score 215 on state reading and math tests; 4 or better on the state writing test and on classroom English and math assessments.
Eighth-grade progress check
Students must score 231 on state reading and math tests; 4 on the state writing test and on classroom English and math assessments.
The scoring scale
State math and reading tests are graded on a scale of 0-300. Classroom work samples and some state tests are graded on a 6-point scale, with 3 defined as developing and 4, as proficient.
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The Technology Plan supports developing opportunities for extensive use of technology in schools so that students can learn about and use these new tools to perform diverse tasks involving communication, problem solving, accountability, and other functions essential in the curriculum as well as in future careers.

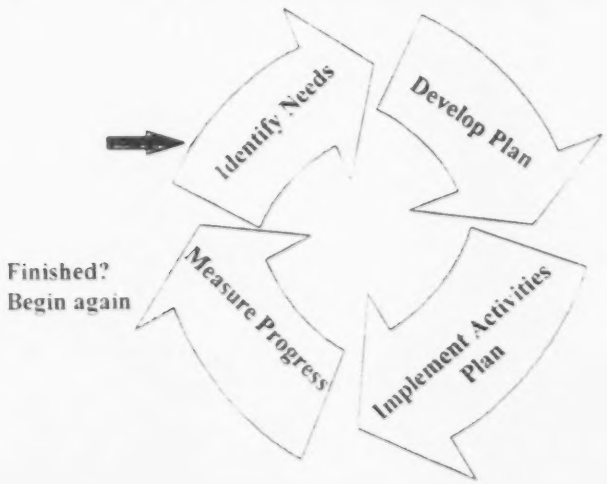
The Plan recognizes that educators who are unable to use available technology themselves are unlikely to help students effectively; therefore, the Plan emphasizes the importance of ongoing professional development. Full implementation of the Technology Plan depends on helping teachers choose the technology that is appropriate for the curriculum and the circumstances of their classrooms. Timely professional development thus becomes essential if the goals and objectives of the technology plan are to be achieved.

In its support of the ongoing efforts toward school improvement in Oregon, the Technology Plan assumes that instructional technology will continue to be delivered through the same framework used for administrative technology. Such integration not only fosters multi-purpose use of existing and future telecommunications infrastructures, it demonstrates fiscal soundness.

The Technology Plan recognizes that as the teaching-learning process moves beyond the physical limits of the classroom, the full range of administrative practices and procedures must also evolve to support all aspects of student learning from preschool through secondary education. See Figure 2.

Figure 2

Technology Planning



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Systemic and systematic statewide efforts to integrate instructional and administrative technology will increase the capacity of each district to give all students and teachers access to state-of-the-art technology including the telecommunications infrastructure. The Technology Plan is designed to further the ongoing participation of all partners in a process that will effectively apply technology to support student learning. Program improvement, and ultimately effective management and accountability, depends on the development of prudent uses of student data to ascertain if students are learning what is being taught. Data collection, recordkeeping and related information management must support and inform, rather than impede, effective instruction.

Background to the 1997 Technology Plan

For nearly 30 years, the Department has been working in partnership with local school districts and education service districts to build capacity to benefit from the rapid changes in computerized information and other technology through systemic and systematic approaches. Other partners, including businesses, have joined in this effort. In 1969, for example, a Business Task Force on Education developed a plan for the business and management functions of elementary and secondary education in Oregon. The task force, however, could not anticipate the rapid pace at which technology would change over the next 20 years.

In 1992, the challenge of implementing Oregon's statewide school improvement plan led State Superintendent Norma Paulus to commission a new plan to address current and future needs. The plan rested on a fundamental belief that administrative and instructional technology systems must be developed as a single cost-effective and integrated statewide network. *The Role of Technology: A Plan to Support ODE and 21st Century Schools* proposed a series of recommendations including: data collection and reporting standards, technology standards, the upgrading and replacement of hardware and software, a statewide electronic communication system, a Department management information system, leadership training and staff development, and funding (Appendix C).

These earlier efforts helped position the state to respond to an emerging federal focus on technology. In 1994, Oregon revised the 1992 Technology Plan, added a process for including instructional technology and submitted it as an integral part of the state's Goals 2000 Plan (Appendix F). Implementation of the 1992 and 1994 Technology Plans, carried out statewide by various cross-functional teams and task forces led by Department staff, has added to the state's progress in developing a statewide system. As an example, the Oregon Public Education Network (OPEN), which grew from a grassroots effort to formalized status in 1996, is a project of the Oregon Associated Education Service Districts. OPEN, whose mission is to enable all of Oregon's K-12 schools to participate in a coordinated information network, has built on successful regional networks to offer a wide range of educational services targeted for Oregon students and educators. These services include brokering telecommunications circuits to local districts to enable each school to be connected to the internet. OPEN provides

free Internet subscription. OPEN capitalizes on the existing technology capacities of 21 ESDs to provide the needed network for user access to telecommunications. Through OPEN, Oregon has initiated a process to enable all schools to make a connection in the most effective and low-cost manner possible. A steering committee with statewide representation guides operation of OPEN. (Appendix G)

OPEN's Instructional Networking Group (OPEN_ING) is a consortium of teachers, library/media specialists, technology coordinators and professional development specialists working together to help other educators use technology in the most effective and efficient ways. OPEN_ING members work with the OPEN steering committee to improve professional services. OPEN_ING members initiated the OPEN web site providing access to instructional materials, lesson plans, professional development opportunities, programs and services, and links to Internet resources.

The OPEN Instructional Technology Clearinghouse (OITC) was founded in 1996 through the support of the ODE. OITC is helping develop a support system for staff development and instructional technology in Oregon. OPEN_ING and Department staff provide technical oversight and support for OITC (Appendix H).

Development of the 1997 Technology Plan

Recent state and federal legislation including the 1995 revisions of the Oregon Educational Act for the 21st Century, the Improving America's Schools Act and Oregon Senate Bill 994 provided impetus for significant revisions to the 1994 Technology Plan.

The Technology Plan was drafted and revised by representatives from each section of this Department to maintain a comprehensive vision and approach to the use of technology. Over the past year, the Department identified specific issues that needed to be addressed in the Technology Plan including the use of technology for instruction, to provide access and equity, to insure accountability and program improvement, to improve communication and to support effective and efficient management.

In drafting the plan, ODE recognized that partnership with local school districts, ESDs, higher education, businesses and others must continue as the Oregon school system addresses the multiple needs related to achieving technology-related goals. The draft Technology Plan was reviewed by the Oregon 21st Century Schools Advisory Committee, a statewide representative body appointed by the State Board of Education and charged by the legislature with advising the Board on implementation of the school improvement program. Comments were solicited from the NetYear97 Education Task Force, OPEN_ING, Oregon Educational Technology Consortium (OETC), and all members of the statewide telecommunications forum listserve. In addition, the draft Plan was posted on the Department's web page for two weeks in December 1996 and was again circulated for further comment and posted on the web page in January 1997 before adoption by the Oregon Board of Education January 22, 1997.

Needs, Goals and Objectives

The primary goal of the state school improvement plan is markedly improved student achievement. To achieve that goal, the Department recognizes the importance of effective implementation of the technology plan which, in turn, depends on addressing the following technology-related needs in a timely manner:

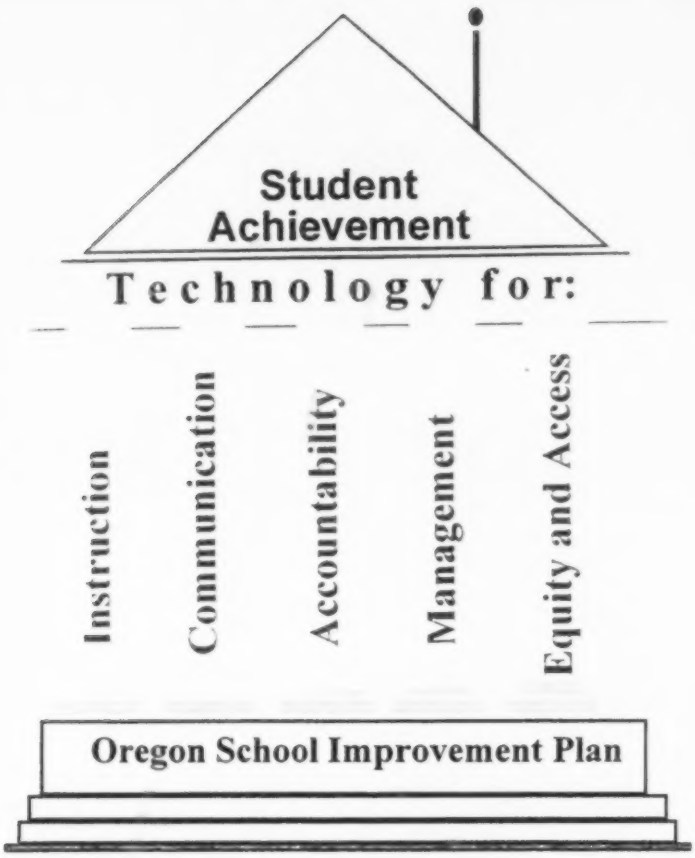
- Technology for education and instruction: technology standards and policies are needed for school buildings and facilities, for student performance, for professional development, for use of technology for instruction including tutoring and professional development (e.g., educational television, Internet, distance learning), and to promote direct and immediate communication about new technology;

- Technology for meaningful education, equity and access: technology is needed to provide the bridge to information, communication, image media, problem-solving, and accountability to help all students reach high standards;

- Technology for accountability and program improvement: technology is needed to collect, use and report student financial and performance data from all education programs managed by the state or by local districts to assess progress, measure achievement, evaluate programs and plan. This information in turn generates other documents such as the assessment report, dropout report, and reports to the legislature and public that enable the state or local districts to comply with grant reporting and monitoring requests;

- Technology for communication: technology is needed to provide interagency communication within and out of state, for document preparation and delivery, communication with schools and districts, communication with other agencies and with the public (e.g., telephones, faxes, e-mail, Internet), and efficient and effective work at all levels of the school organization; and

- Technology for consolidated, effective, and efficient internal management purposes: technology is needed for effective school management, tracking dollars, providing internal communication, disseminating information in a timely manner, and for warehousing data.



The Goals of the Technology Plan are general statements of the purpose or end result of the Plan. The Goals correspond directly to the four national technology goals intended to improve education across America by addressing issues of equipment, connectivity, instruction and professional development. The Objectives are more specific targets, selected as steps on the way to achieving each of the four Goals. The Objectives are grouped by Technology Plan Goals in Section II, Meeting the Goals and Objectives. The Plan sets out progress the state has made toward achieving each objective and identifies some of the specific steps that must be taken if the objective is to be reached.

The Goals of the Plan are:

- All Oregon students and teachers will have access to appropriate technology including modern computers;
- Every school and classroom in Oregon will be connected to the Internet;
- Effective software and on-line learning resources will be an integral tool to support the school curriculum in Oregon; and
- All Oregon K-12 teachers, administrators and staff will have the immediate and specific education and support they need to help students learn through technology including computers and the Internet.

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To meet the goals of the Technology Plan by 2001, partners in K-12 education, business, industry, community colleges, higher education, professional organizations, and elsewhere must work systematically and collaboratively in the most cost-effective manner possible.

II. Meeting the Goals and Objectives

Following each goal are the specific objectives for that goal. These Technology Plan objectives will be met through careful coordination of work among the Department, OPEN, OPEN_ING, OITC, OETC, NetYear97, regional/local education agencies, business, industry, parents, higher education, professional organizations, and other partners (the Partners). Progress that the Partners have made toward each objective is indicated along with actions to be taken by the year 2001. The objectives will be reviewed annually beginning late summer 1997 and further progress and additional actions will be identified.

Goal 1: All Oregon students and teachers will have access to appropriate technology including modern computers. The following objectives (1a - 1g) will foster this goal.

1a. Each Oregon school district, individually or in consortia with other districts and their education service district, will develop a three- to five-year Technology Plan that supports the district's Consolidated District Improvement Plan.

Progress

- More than half of Oregon's school districts have made progress toward development of a Technology Plan as of December 31, 1996.

Action Plan

- The Partners will design and present a series of technical assistance options to meet the unique problems of districts to help them prepare their plans.
- Staff in each education service district, who serve as NetYear97 and OITC regional facilitators, will provide support to districts and consortia in the planning and grant application process.
- Districts will coordinate local technology planning with their consolidated district improvement and special education plans.

1b. The Department will conduct a competitive process annually among Oregon school districts for proposals for Technology Literacy Challenge Grant funds, with priority given to school districts that have the highest numbers or percentages of children in poverty and that demonstrate the greatest need for technology.

Progress

- The Department is able to identify districts with high numbers or percentages of children in poverty as well as districts that demonstrate the greatest need for technology. This information will be integrated into criteria for scoring applications and awarding funds.
- Department staff have experience in providing technical assistance to districts wishing to apply for competitive state or federal grant funds, e.g., Charter Schools, Bilingual Education, Safe and Drug Free Schools. The process is designed to assist eligible districts to develop well-designed applications without compromising the integrity of the grant competition. In addition, the Northwest Regional Educational Lab and Department web sites provide vehicles for disseminating technology plans and policies that can guide development of local plans and proposals.

Action Plan

- The Department will develop scoring criteria for the award of grants under the Technology Literacy Challenge Fund to ensure that districts with high priority for these funds are recognized during the review and awards process.
- The Department protocol for grant applications will be adapted for the Technology Literacy Challenge funds and awards will be made beginning early summer 1997.

1c. The Technology Plan will promote strong leadership for educational technology.

Progress

- The Oregon Technology Forum Council (OTFC), composed of persons broadly representative of telecommunications service providers and user groups from the public, private and nonprofit sectors, is appointed by the Governor to oversee development of telecommunications infrastructure in Oregon and to develop short-term strategies and long-term plans for achieving the vision. The Department is represented, however, on OTFC only through the Information Resource Management Unit of the Department of Administrative Services. The Department Technology Information Resource Management Director serves on the Intergovernmental Relations Working Group and the Universal Access Subcommittees of OTFC.
- State Superintendent Norma Paulus has led numerous activities to promote educational technology to support Oregon school improvement, including formation of OPEN, formation of numerous close alliances with high technology industry, and active participation in implementation of the Telecommunications Act of 1996, particularly in the area of universal service support (Appendix K).
- Governor John Kitzhaber has advocated telecommunications needs in education as well as in health and economic development.
- The Department supports the "Action Plan in Technology/Distance Education" now being refined by representatives of the Oregon Joint Boards of Education

for adoption. The Joint Boards coordinate strategies to implement policies established by the individual boards for the Oregon State System of Higher Education, the Office of Community College Services, and the Department (Appendix I).

Action Plan

- A representative from K-12 education should serve on the Oregon Telecommunications Forum Council (OTFC).
- Regular presentations on K-12 educational technology programs should be made at OTFC meetings.
- OPEN is seeking funding.

1d. The Partners will establish and disseminate technical standards and policies for school buildings and facilities and establish purchasing procedures to reduce costs.

Progress

- Because informed purchase/leasing of equipment and upgrading of hardware and software is critical, OETC provides for group purchases and disseminates price lists in a newsletter which is mailed three times per year to every teacher in the state of Oregon and placed on the web. (http://www.sce.ojgse.edu/k14/proforg/oetc/).
- OPEN identifies standards for administrative and instructional technologies.
- Many ESDs purchase technology hardware through cooperatives.
- Bids and grant awards which have been developed by ESDs and local education agencies (LEAs) specify that any public school adopt standards and policies as part of the funded work.

Action Plan

- Local educational agencies such as schools and school districts will seek assistance if needed with the purchasing and leasing of administrative and instructional hardware and software that meets rigorous standards of interoperability or systems compatibility and open system design.
- Information on successful programs as well as ongoing technology support groups at both the LEA and ESD level will be provided by the department to facilitate the application of standards of interoperability or systems compatibility and open system design.
- LEAs will be given information on OPEN standards, ESD purchasing cooperative agreements and an on-line discussion group.

1e. The Partners will provide access to state-of-the-art technology for all students, schools and school districts in Oregon, especially those schools with the highest numbers or percentages of children in poverty and demonstrating the greatest need for technology.

Progress

- In 1991, science and math programs in Oregon benefited from the donation by Intel Corporation of a supercomputer to the Department and from the National Science Foundation's selection of the state as a SuperQuest site. SuperQuest is a national competition program involving high school students in investigating computational science problems and integrating computational science into high school science and math curricula.
- NERO (Networking Education and Research in Oregon) provides high-speed Internet connections to ten or more of the highest poverty schools in Oregon including schools on American Indian reservations. NERO also pioneered innovative practices in professional development of teachers in use and instructional applications of the Internet.
- Hewlett-Packard and the Department support an experiment in wireless access to the Internet for every student in classrooms in three schools: Siletz Elementary, Sunset Elementary, and Taft Middle.
- Through Project TechTrans students learn research methods via the Internet.
- A mobile technology van donated to the Northwest Regional ESD by Intel is equipped with state of the art CAD, CAM and robotics technology. This van tours middle schools in the region allowing each student to have hands-on experience with computers in employment related fields. This project encourages young girls to enter technology related fields.
- A project with the Center for Spoken Language Understanding at Oregon Graduate Institute has allowed students in Washington County to engage in development of spoken language systems. Working side by side with graduate students in computer science, these students have assisted with developing software and demonstrating successful applications to local businesses. One computer with spoken language systems development capacity has been placed in each district in the county.

Action Plan

- Funding sources will be identified to further the use of technology in the schools.
- The Partners will identify additional funding sources targeted to provide access for all students including those with disabilities.
- The Department, along with the other statewide agencies, will develop a statewide system of equipment sharing to help LEAs offset the costs of specific technologies needed by individual children and youth with disabilities.

1f. The Partners will foster shared use of equipment, facilities, and other technology resources for all adult learners, including adults with disabilities.

Progress

- School districts throughout Oregon have one or more school sites designated as a "community school," that are open after school hours at minimal or no cost for recreation, education and other services. These ventures range from

after school recreation programs to statewide banking businesses training local employees to local adult literacy programs delivered via Oregon ED-NET.

- Through the Capitol Center in Washington County, school districts access state-of-the-art technology available in high technology companies, for a number of Certificate of Advanced Mastery endorsement areas including health, manufacturing and electronics.

Action Plan

- Local technology centers, local educational agencies and adult and family literacy providers will collaborate to ensure that technology can be used after school.
- The Department, other state agencies, local chambers of commerce, businesses and local education agencies will coordinate efforts to establish a community learning network for literacy and job skills training.

1g. The Partners will promote the rapid dissemination of modern technology infrastructure and desktop tools to enhance internal management at all levels of the school system (school buildings, districts, educational service districts and the Department).

Progress

- The OETC facilitates group software purchases.
- The Office of Professional Technical Education Management Information System (OPTE-MIS) gathers and determines performance measures for all professional technical students in the state (45 percent of all high school students.) OPTE-MIS is gathered using software provided by the Department in addition to programs developed by school districts. Data can be transmitted electronically in a variety of media (disk, tape, file transfer protocol).
- The School-to-Work Internet connected database is regional in scope covering the State's 15 workforce quality regions providing students with quick access to work opportunities and collecting data needed for performance management and evaluation.
- The Oregon Migrant Student Information System (OMSIS) provides transfer of migrant student records within the state of Oregon through use of a web site browser.

Action Plan

- The Partners will support wider use of modern technology to enhance internal management at the building, district, regional and state levels of education.
- The Department will continue consolidating and streamlining accountability and administrative systems to support development of the CIM and CAM, to measure progress and to develop continuous improvement processes.
- OMSIS capacity for interstate student record transfer will be developed through the use of SPEEDE/ExPRESS.

Goal 2: Every school and classroom in Oregon will be connected to the Internet. The following objectives (2a - 2b) foster this goal:

2a. The Department and regional/local educational agencies will collaborate with private business and other organizations including state and federal agencies and higher education in the development, use, and cost sharing of communication lines.

Progress

- OPEN provides all schools and districts access to state contract prices including those for telecommunications. In 1996 OPEN offered the option of purchasing telecommunications circuits from the State of Oregon Fast Packet Contract (Appendix J). This contract has lowered the cost of a 56kb circuit in some areas from over $1,000 to $107/month. The current price for a T-1 Circuit is $450/month. Prices are guaranteed for five years. OPEN is brokering telecommunications circuits from the State of Oregon Fast Packet Contract to schools as quickly as possible so that all students will have access to the Internet.
- OPEN collaborates with an Oregon State System of Higher Education/ Community College collaborative for expanded access to postsecondary education, called the Oregon Network for Education (ONE). The focus of ONE is to facilitate pathways to a range of postsecondary education programs and services.
- The Canby Project, sponsored by the Department, local cable company, community college, and LEAs, has demonstrated digitally transmitted real time video-instruction and data transmission via cable and the Internet between a community college and two school districts.
- US WEST Communications and ED-NET trials are examining collaborative use of infrastructure managed by the two concerns to improve service to schools and others.
- The Superintendent of Public Instruction, OPEN, and others are working closely with the Oregon Public Utility Commission to further implementation of the affordable access provision of the federal Telecommunications Act of 1996 (Appendix K).

Action Plan

- The Department and OPEN will voice K-12's future requirements as higher speed and broader bandwidth telecommunications services become available. For example, Internet II organizers need to be aware of the demand for bandwidth that K-12 may place on services as teachers adopt instructional technology making full use of the Internet.
- The state will develop a plan to provide universal access funding.

2b. The Partners will implement statewide, cost effective, high-speed, wide-area communications in elementary and secondary schools. To the extent possible, communications lines and equipment for instructional and administrative purposes will be shared.

Progress:

- OPEN provides free Internet subscription and technical and design standards and policies to local districts.
- The participation of schools and districts in the development and implementation of a statewide technology system builds on the trend that local districts develop technology plans that meet the highest possible level of systems compatibility and open systems design.
- Some districts have integrated use of telecommunications lines for instruction and administrative data purposes.
- Data collection practices, many of which meet information requirements for state and national reporting as well as decision making, are being analyzed within the Department. The Department is creating an integrated database that will serve as the organizer for statewide educational data.
- NetYear97 has identified willing industry, business, and other community partners to donate planning assistance, equipment/supplies, and technical know-how for networking buildings and equipping classrooms with technology.

Action Plan

- Specific communication needs of each building and district will be identified so that willing industry, business, and community contributors can provide assistance in planning, professional development, equipment/supplies and technical know-how.
- The larger connectivity issue will receive ongoing engineering analysis.

Goal 3. Effective software and on-line learning resources will be an integral tool to support the school curriculum. The following objectives (3a - 3h) will foster this goal.

3a. The Partners will establish and disseminate policies and standards for student performance in appropriate use of technology.

Progress

- The Department has developed Common Curriculum Goals in technological knowledge and technological applications (Appendix D).
- The Oregon Educational Technology Consortium (OETC), whose membership includes most school districts in Oregon, currently distributes a document for establishing a technology skills program in school districts. It includes goals, skills and evaluation guidelines.

- OPEN_ING has recommended that the information literacy standards for student learning developed by American Association of School Librarians (AASL) and Association for Educational Communications and Technology (AECT) be disseminated statewide as work in progress;
- A Goals 2000 project in isolated Grant County has promoted use of technology in seven rural school districts and is measuring the effect of the Internet on student performance;

Action Plan

- The information literacy standards for student learning developed by AASL and AECT will be reviewed and revised as models for local districts.
- School districts will review state Common Curriculum Goals and consider establishment of content standards and benchmarks in technological knowledge and technological applications, then develop plans for professional development and curriculum content and infrastructure.
- Students with special needs, including students with disabilities will receive special access to technology and its applications.

3b. The Partners will promote the development, support, evaluation, and statewide dissemination of software and on-line learning resources demonstrated as being effective in local and regional settings. Emphasis will be on partnerships, action research, and a mechanism that ensures that project developers are supported in dissemination of products and research findings.

Progress

- Experiences funded through Carl D. Perkins Vocational and Applied Technology Act, the Eisenhower programs, Goals 2000, and the National Science Foundation demonstrate how technology in the classroom gives students and their teachers opportunities to eliminate geographic, economic, language and disability isolation.
- University of Oregon Professor Greg Bothun has made real time astronomy data from Pine Mountain Observatory available to students and has taught workshops for teachers in developing network-based curriculum (http://zebu.uoregon.edu/special/uswest.html).
- The Department, Oregon State University Hatfield Marine Science Center, the Museum at Warm Springs and other Partners have collaborated to produce the *Earth and Sea Investigators* program that provides an instructional framework within which learners use technology to construct scientific concepts and progress toward mastery of fifth grade benchmarks in scientific inquiry (http://www.ojgse.see.edu/earthseal).
- The Department manages the Star Schools Project and the creation, design and delivery of distance learning opportunities. In addition, content area specialists throughout the Department offer programs and resources on the integration of technology into instructional practices to enhance student performance.

- OITC CIM/CAM is currently developing web resources to support the CAM natural resources systems endorsement area.

Action Plan

- A curriculum development plan will be developed for interactive network-based curriculum. The plan must be implemented and supported to provide real content-based curriculum on the Internet.
- K-12, higher education, informal learning centers (e.g., museums, aquariums, etc.), commercial television, cable, and other providers will collaborate to make the resources of informal learning centers available on-demand to students and teachers.
- The school system will work in partnership with content experts (i.e. professionals in higher education, state and federal agencies) who are specifically charged with electronic curriculum development.
- The resources of the high technology corridor in northwestern Oregon will be shared with the rest of the state.
- An effective and affordable mechanism to share courses (e.g., natural resource management, languages, advanced mathematics) between schools will be developed to take advantage of the state's and region's most talented teachers.
- Coordination of Department field assistance in administrative and instructional technologies will be encouraged to make better use of existing resources and wider dissemination of practices that impact student performance.

3c. The Partners will promote educational applications of technology to support rigorous academic standards in elementary and secondary schools, particularly for schools in rural areas and areas with a high percentage of disadvantaged students.

Progress

- The quarterly OETC newsletter, which is distributed to all Oregon teachers, provides software and hardware reviews, shares teacher successes and strategies, and offers a forum for exchanging information.
- OPEN_ING has designed the Support Toolbox to provide resources for media specialists and others in school buildings to provide technical assistance to teachers, administrators, staff and students.
- OITC has assigned staff to coordinate with educational service districts to develop the Innovative Engine Competition (Appendix L) and a web-based clearinghouse for curricular resources for teachers on the Internet.
- NetYear97 provides a forum that allows business and community partners to collaborate with educators in all aspects of educational technology (http://www.teleport.com/~netday96).

- Within many ESDs, committees (for example ClackNET) coordinate regional activities in technology and support its integration with the curriculum.
- Business partners, NW Regional ESD, the Department, and Tigard High School are educating technology/curriculum specialists in each ESD and teachers about the promising "TigerNet" model (Appendix M).
- Just In Time Training (Appendix H), a project of OITC, is in the process of developing and/or identifying training and technical assistance resources available to teachers on the web.

Action Plan

- A process of linking willing contributors of technology resources and know-how, identified through NetYear97 and elsewhere, with needy schools will be developed and implemented.
- OITC is seeking continued support as a clearinghouse for professional development and instructional technology resources in Oregon.
- OITC is seeking a larger server to meet increasing demand.

3d. The Partners will provide best-practices models to improve student achievement through use of technology within the academic curriculum and in providing career opportunities.

Progress

- The Oregon Professional Technical Education Network exemplifies a model opportunity for academic instruction at the Certificate of Advanced Mastery level in health endorsement areas. This network is produced at the state-of-the-art North Clackamas School District's Sabin Skills Center and disseminated to remote schools throughout the state through Oregon ED-NET.
- IDEAL (Internet Driven Educational Access Link) utilizes the Internet to access a regional intranet data base that provides students with quick access to work opportunities with local employers. Developed by the South Coast ESD this technology has been supplied to all regions of the state by the Office of Professional Technical Education. Initial application has been focused at the high school level, but it can be used by middle and elementary schools.
- CAM InfoNet (http://bbs.nclack.k12.or.us), an electronic communication network for people involved in planning the CAM, serves as an electronic meeting place, a forum for sharing information and planning activities and a showcase for promising curricula. A major purpose is to connect the academic and professional technical education programs of Oregon's high schools and community colleges. CAM InfoNet currently includes general information, endorsement area topics and discussion areas, school-to-work information, address lists of endorsement area teachers, electronic mail and examples of curriculum projects.

Action Plan

- A clearinghouse of abstracts of promising and best-practices models linked to specific curricular information with contacts for each model will be made available to all teachers, administrators, parents, and other concerned parties. The clearinghouse must be continually reviewed and updated to maintain a high level of quality.
- Projects like CAM InfoNet and OITC will receive continued support.

3e. The Department and LEAs will establish and promote standards for use of technology for tutoring students.

Action Plan

- The Partners will research and disseminate information on using technology for tutoring.

3f. The Department will provide statewide assessment support that uses technology for record keeping and managing collections of work samples and other activities.

Progress

- The Oregon State Board of Education has adopted content and performance standards for student assessment at grades 3, 5, 8, and 10 (Appendix D).
- A computer-adapted statewide assessment application is currently under development. The computer-adapted items are based on the student's performance on previous items. The computer version will provide a score immediately and will maintain information for student records, state reporting, and school and district planning. Students at about the tenth grade will be able to obtain the Certificate of Initial Mastery by providing required evidence which includes state multiple choice tests, on-demand performance assessments, and work samples.
- "Proficiency" on the state multiple choice assessments is represented by achieving a criterion scale score. Students who fail to meet the standard will be provided additional opportunities to take the test. The computer adapted assessment will allow multiple opportunities and will maintain test item security.
- Districts have conducted pilot projects related to tracking, storing, and displaying student work and several schools have created electronic means to manage collections of work samples.
- Some districts in Oregon have been working with the SPEEDE/ExPRESS system for record transfer.
- South Coast ESD developed a network system for district reporting that employs the Internet for transmitting records.

Action Plan

- Access to the computer version of the assessment will be piloted.
- School districts will need to keep a permanent educational record that documents what students know and can do. The evidence accumulated for the criterion level of performance adopted by the State Board will require a record keeping system that is efficient and effective.
- Standards for managing collections of work samples should be established by local districts.
- The Department will provide leadership and support to consolidate and streamline accountability and administrative systems to meet the needs of CIM/CAM in order to measure progress and develop continuous improvement processes.

3g. The Department and LEAs will incorporate technology fully into student assessment, scoring, recordkeeping, and reporting of student performance levels.

Progress

- The Oregon Statewide Assessment is currently administered on scan forms with bubble sheets for the multiple choice tests and by paper and pencil for the open-ended math and on-demand writing performances.
- Many ESDs conduct scanning on site and send data to the contractor.
- A Department contractor produces and distributes assessment reports to schools and districts. Districts and the public now obtain assessment results with shorter and shorter turn around times.

Action Plan

- Improving test administration, test scoring, and test reporting through technology will improve the effectiveness of schooling by getting the results closer to students and teachers in time and relevance. Some testing could be administered over the Internet, individually, and on an as needed basis. Timely assessment information is needed to support education decision making.
- In order to provide decision making information, the assessment results of students with special needs (e.g., minority, Title 1, students with disabilities) will be extracted from information on all students. This allows for disaggregate, or comparative analyses, across groups and determination of the rate of learning that different groups are experiencing.

3h. The Partners will establish a comprehensive and integrated assessment information system based on technologies that allow districts to obtain assessment resources electronically, administer assessments efficiently and effectively, transmit assessment results, and evaluate performance for instructional decision making.

Progress

- Since 1991 the Oregon Statewide Assessment has become an integral part of measuring progress on the standard based curriculum.
- Summary reports provide classrooms, schools, and districts with information about how well students perform.
- Districts, newspapers, and media analysts now obtain electronic versions of the data and conduct their own analysis.
- 1996 summary scores for reading and mathematics are available on the web in several formats (http://www.ode.state.or.us).
- Student level data bases usually collected through survey methods have been developed by the Offices of Professional and Technical Education, Assessment and Evaluation, Special Education, Compensatory Education including migrant education, and for the school dropout report.
- Some districts have information management systems that incorporate assessment information, but many do not.
- Efforts are currently underway to link special education, assessment, school drop-out and school-to-work records in a relational data base.
- The annual Oregon Report Card and related assessment data is available on line.

Action Plan

- The Oregon Statewide Assessment Program will develop an information system that manages assessment items, student scores, school and district level performance, administers testing programs, provides data for program evaluation, analysis, and comparison, and informs the public regarding the progress of Oregon's educational system.
- Nine existing program data bases need to be linked in a comprehensive relational data base to address the problems of student mobility.
- Confidentiality of student data must continue to be protected throughout the system.
- Within the strictures of the Privacy Act, the Department will provide assessment and student performance data bases that can be analyzed by members of the public.

Goal 4. All K-12 teachers, administrators and staff will have timely and specific education and support they need to help students learn through technology. The following objectives (4a - 4c) will foster this goal.

4a. The Partners will provide timely and specific professional development opportunities for educational professionals and others on the instructional, accountability, and administrative (including program improvement) applications of technology.

Progress

- Several statewide professional development projects are collaboratively underway, for example, NetYear97 (http://www.teleport.com/~netday96); the Online Internet Institute (http://oii.org; http://arlo.wilsonhs.pps.k12.or.us/oii.html), OPEN (http://www.open.k12.or.us), and Oregon US WEST Communications/NEA Teacher Network (http://otn.uoregon.edu).
- CAM InfoNet (http://bbs.nclack.k12.or.us), an electronic communication network for educational professionals involved in the planning of the CAM is supported through the professional technical education regional coordinator network. Some regions of the state are using this system as the main communication method for sharing curricula.
- Training for data collection and use of the information from the OPTE-MIS system is provided by the Office of Professional Technical Education staff.
- The Department offers a limited range of technical assistance to LEAs on the design and implementation of administrative and instructional technologies. The Department supports and cooperates with OPEN.
- The US WEST Communications' Oregon Teacher Network grant program (1995 - 1997) provides 300 teachers, in teams of two from across the state, a laptop computer and education on using the Internet in the classroom. Each teacher follows a year long professional development plan that includes on-line activities and two-way video sessions and is under contract to provide additional professional development for other teachers. The project's mentors are experienced classroom teachers who receive a stipend for on-line projects.
- The ESDs, which provide a foundation for the emerging telecommunications infrastructure, also provide a foundation for regional professional development. The Department has established nine regional teams linked with ESDs that respond to requests from schools, provide technical assistance and deliver training workshops on the assessment system, Certificates of Initial and Advanced Mastery standards, district improvement planning, curriculum frameworks, federal programs, alternative learning environments, and special needs students.
- The Department is developing sample procedures and school district policies regarding appropriate technology for use with special education students.
- The Department offers a summer institute and workshops to facilitate information dissemination to educators regarding access to appropriate technology for use with special education students.
- The Metropolitan Area Computer Education Professionals (MACEP) has formed a community of learners in the Portland metropolitan region and identified common needs and experiences. MACEP holds "SlumberTechs" providing intense support training, participates in a listserv discussion group, and holds monthly meetings.

Action Plan

- Practitioners will be encouraged to share instructional strategies and promising practices in and across content areas to help students reach high standards.
- Special education professionals and paraprofessionals will be given ongoing opportunities for education in the use of technology for children with disabilities.
- Technology specialists will receive training and support in Internet Protocol Network Engineering.
- OPEN_ING will replicate as appropriate the MACEP model and similar regional committees that focus on integration of technology in the curriculum.
- Parents of all students will be provided with support and opportunities for involvement with application of technology to improve student learning on an equitable basis.

4b. The Department will provide technical assistance to educate personnel who can support and meet the technology needs (including assistive technology needs) of students with disabilities.

Progress

- The Department's Office of Special Education (OSE) provides phone support to parents and educators
- OSE supports ED-NET presentations on assistive technology
- Oregon Technology Access Program and Comprehensive System of Preschool Development (CSPD) provide distance learning technology services.
- OSE currently supports workshops, summer institutes, and follow-ups to assist professionals.

Action Plan

- Districts will be provided with clear information about their legal responsibilities concerning technology for children and youth with disabilities.
- Documents (best practice papers) will be created with technology questions and answers.
- The Department will work with the Oregon State System of Higher Education to infuse technology and curricula regarding assistive technology into existing courses for special education professionals, associate level degree technology specialists, and training for administrators.
- The Department will provide special education professionals and paraprofessionals with ongoing opportunities for professional growth in the area of technology for children with disabilities.
- The Department will work in cooperation with the Teachers Standards and Practices Commission (TSPC) to develop a set of standards for earning a technology endorsement in addition to an already existing endorsement.

4c.	The Department will provide local educational agencies (LEAs) with information to assess effectively the technology needs of individual students with disabilities.

Progress

- The Oregon Technology Access Project (OTAP) provides training in this area.

Action Plan

- Training for special education professionals in technological assessment of students with disabilities will be supported. This will include both assistive technology needs (to complete major life functions: speaking, writing, reading, etc.) and technology to assist students with disabilities in other areas.
- The Department will work with ESDs to develop a statewide network for technical assistance.
- The Department will develop additional information resources to assess the technology needs of students with disabilities.

III. Monitoring, Evaluation and Reporting

Information on the benefits and results of implementation of the Technology Plan must be shared with the public. To accomplish this, the Department has developed a process for establishing benchmarks with annual review and reporting of progress that in the future will include specific evaluation procedures to support implementation of state or federal legislation.

Specific steps to comply with Section 427, GEPA, that will be taken by the Department to remove barriers that may exist to equitable access to, or equitable participation in, activities to be undertaken under TCLF are described on page 9 (objective 16); page 11 (objective 1e); page 13 (objective 1f); page 18 (objective 3c); page 23 (objective 46); and page 24 (objective 4c).

Evaluation of the Plan will include both summative and formative measures. Department staff will continue to work with staff of the Northwest Regional Education Laboratory and the Regional Technology in Education Consortia to identify summative measures. Formative evaluation measures of each objective will be developed during the late summer conference described in Section IV and in an annual work plan.

LEAs are required as part of their applications for federal funds, including the Technology Literacy Challenge Fund (TLCF), to describe the process they will use for ongoing evaluation of the impact of the funds in improving school curriculum and increasing student achievement. Department staff are identifying standards required to measure student progress. As standards are developed under the Plan, Department staff will monitor LEA performance using the state's regularly scheduled school improvement visits and other reporting methods.

The Department will continue to participate in national evaluation efforts to determine the extent to which states and LEAs are achieving the four goals of the TLCF. Annual performance reports will be submitted beginning in 1998 as requested.

In addition to regular reports on progress in implementation of the Plan made to the 21st Century Schools Council and the State Board of Education, information will be provided to members of the Legislative Assembly and other policy makers in a timely manner.

IV. Oversight, Staffing and Next Steps

The Department, under the direction of the State Board of Education, has overall responsibility for coordinating and implementing the entire Oregon School Improvement Plan, including the Technology Plan. This includes integrating technology with curriculum, instruction and assessment into all levels of Oregon's standards-based learning system (Appendix D). The responsibility is shared by staff of all Department offices with assistance from school districts and education service districts, state agencies, informal education resources, business and industry and the public at large. Staff members have been designated to coordinate the ongoing revision of the Technology Plan and to administer related federal projects.

In the future, the Technology Plan will:

- Be used to establish benchmarks and measures for formative evaluation of the Technology Plan and its support of the Oregon Common Curriculum Goals
- Include identification of formative evaluation measures to indicate the role of the applications of technology in student achievement of the Oregon Common Curriculum Goals (Appendix D).
- Be reviewed annually to measure progress and determine next steps including activities, responsible parties, funding, and timelines. OPEN_ING, with the assistance of NetYear97 and the Department, will coordinate a review conference in summer 1997, with planning sessions to address education technology for pre-K through grade 12 educators and administrators, higher education and other partners. The conference will include presentations about current project activities. During the planning sessions of the conference, participants will review the benchmarks, identify barriers to implementation of the Technology Plan, and develop a plan of action. Further planning sessions will follow the conference.
- Be monitored in following years by Department staff who will evaluate and report on progress toward the benchmarks; an analysis of current activities and adjustments to the Technology Plan will be presented and discussed at the annual conference.
- Be used to develop biennial budget estimates.

V. Technology Plan Budget

In 1997, financing technology for educational purposes in Oregon occurs because of collaboration among private and public entities concerned about students. Oregon is one of three states that has not specifically dedicated funds to support applications of technology in education. This does not mean that a system of support does not exist, however, as the Department and each district across the state have had to develop capacity to acquire technology from general funds and from the generosity of private businesses rather than from a general state appropriation identified for that purpose. The existing statewide framework and components described in this Plan are evidence of a commitment to build a system to benefit all students.

Financial support for the Technology Plan is identified by component:

- Internal day to day operations for staff of the Department;
- Expansion of the Department's capacity to receive, analyze, relate and disseminate data and information - the *enterprise* data - that reports on the progress of students and provides accountability;
- Completion and maintenance of the OPEN network that extends the system for both administrative and instructional uses;
- Financing the Objectives—improving capacity to provide instruction for all students through applications of technology.

Oregon Department of Education Operations

The budget is based on the current framework for the Department's internal network as well as on the installed base in ESDs and districts which interfaces with the state's hardware. Projections for costs of installing the software essential to operate the administrative portion of the system are based on budget packages some of which have already been approved by the Legislative Assembly. While the planning assumptions for other budget packages are clearly supported by state policy, the results of the legislative process cannot be forecast at this time.

The state of Oregon's framework includes a Sun 6000 UNIX with Oracle database which is operated by the Department of Administrative Services (DAS) on a shared cost basis for participating state agencies including the Department. All political sub-divisions in Oregon also have the option of purchasing telecommunications circuits through the Fast Packet Contract which offers fixed-price, low-cost frame relay circuits from any location in the state (Appendix J).

The Department's costs for system development and maintenance are met through a variety of sources including:

Salaries of staff of the Department's Technology Information Resource Management (TIRM);

Salaries of staff members in Department offices responsible for data collection;
National Center on Education Statistics Grant;
Federal funds supporting enhancement of the Department's assessment efforts;
Federal administrative funds from USDA to develop claims processing and tracking to provide accurate disbursements and reporting for state and federal program managers working with the School Nutrition operations; and
Federal funds from IDEA to provide network support for data, communications and instruction technology for Department programs at the Oregon Youth Authority's Youth Correctional Facilities.

Expanding Capacity: Technology and Information Resource Management (TIRM) Budget

The proposed budget for the Department's TIRM for the 1997-99 biennium supports the Plan as described below.

Task 1
Establish electronic data and communications links with LEAs, ESDs, community colleges, and other public agencies through system development to provide claims processing and tracking for school nutrition operations within the Department, commodity distribution centers in Portland and Eugene, schools and child care providers statewide. Data from the current Wang VS Nutrition system will migrate to the Client Server.[3]

Costs
Federal USDA funds of $844,540 are approved for this project. Work will be accomplished by contractors using the applicable bidding processes.

Task 2
Establish a corporate data concept and physical repository within the Department that provides the data and information needed by districts, ESDs, community colleges, parents, teachers, administrators, other concerned citizens and the public, shifting emphasis from paper-based communications and publishing to electronic-based via Internet.

Develop a Department database on UNIX; identify data elements currently in use throughout the Department in nine significant databases (*enterprise* data), e.g. dropout data, records of highly mobile students (intra- and interstate) student performance data, school nutrition records, etc., and compile them into a relational database to be housed in a Sun Box on the UNIX server. Data and information can then be made available on

[3]The majority of the Department's date problems related to year 2000 will be solved through Task 1. The balance of Department applications are desktop runtimes which are currently being rewritten in the course of regular maintenance and will be converted to the *enterprise* database in a timely manner.

the Department Website. Federal and state reporting can be accomplished from this database as well.

Costs
Database model, creation and installation of initial database as Phase 1: $50,000 (Source: NCES)
Funding is being sought for construction of the remaining eight databases for Phase 2 - 13,000 hours = $842,000, and for installing the databases during Phase 3 - 8,000 hours = $520,000

Task 3
Upgrade Internal LAN capabilities to 100 MB ethernet and build in fault tolerance and an Intranet hub. The Intranet hub will gather corporate data and provide communications and automated incoming FAX services. Existing Internet server will publish data and information in the public interest. Security and back up will be improved through installation of those products. The last of the Apple machines will be eliminated through product replacement in a move to a single PC hardware and operating system.

Costs
Internal Department staff will provide installation at a cost of $257,651 with possibility of a small contract for Internet expertise.

Task 4
Develop network plans with Oregon Youth Authority (OYA) to establish electronic data and communications links that will provide support for data, communications and instructional technology for Department programs at seven current and eight new OYA youth correctional facilities to benefit students and faculty at these facilities.

Costs
Startup funds of $600,000 will be provided through the 1997-99 ODE budget. The Department will contract with Optec for wiring; server and client hardware and software will be purchased through state contracts.

OPEN Network

OPEN (Appendix G) is the primary link for the installed base financed through state and local funds in ESDs and districts. OPEN guides public school districts as they operate their connections to the Internet from providing technical expertise for the initial connection through assisting teachers with integrating technology into classroom lessons. Beginning in 1994, installations through OPEN have now provided more than two-thirds of Oregon's 1,200 public schools with connection to the Internet. The current description of the OPEN installed base is found at http://www.open.k12.or.us. The information is revised frequently.

The value of the OPEN installed base is difficult to determine. Oregon, in cooperation with Quality Education Data, has initiated a survey of the current level of connectivity and use of technology. Results of that survey will be available by March 1997 and will provide:

- information on the value of the installed base,
- costs of ongoing maintenance of the base, and
- approximate costs of adding currently unserved schools to the base.

As connectivity occurs, the costs of the installed base and ongoing maintenance are shared by the districts, ESDs and OPEN.

Estimated biennial telecommunications cost for one circuit for each school in the state is $6 million, a base level figure which provides a level of connectivity for each school but does not cover total cost. At this time, costs for all technology and telecommunications are born by the individual district.

As electronic connectivity occurs, the capability for other uses, such as data collection also are available Through processes like SPEEDE/ExPRESS, data can be reported to the Department in a standard method and meet Department requirements with a minimum of effort. Translation software can be purchased at district or ESD level for less than $1,000 per site. Systems development efforts will vary from district to district, from as little as one FTE for one month to several FTE for up to six months. Development costs depend on the type of database in use and the size of the system.

One-fourth of Oregon's 200 districts are small, with fewer than 200 students enrolled K-Grade 12. These districts could report using an electronic form process established on the Department's Website. Large districts with large databases would required a more automated process. Creating this data collection and reporting process is a current joint effort among the Department, ESDs and school districts.

Financing the Objectives (source of funds)

Objective 1a	Technology Literacy Challenge Funds
Objective 1b	Technology Literacy Challenge Funds (TLC)
Objective 1c	State general funds
Objective 1d	State and local funds
Objective 1e	TLC Funds; state and local funds
Objective 1f	IDEA, TLC Funds, state and local funds
Objective 1g	TIRM Task 4; federal, state and local funds
Objective 2a	State and local funds
Objective 2b	Federal, state and local funds

Objective 3a	State and local funds
Objective 3b	Federal, state and local funds
Objective 3c	Federal, state and local funds
Objective 3d	Federal, state and local funds
Objective 3e	Federal, state and local funds
Objective 3f	TIRM Task 2 and 4, federal, state and local funds
Objective 3g	TIRM Tasks 1, 2, 3; federal, state and local funds
Objective 3h	TIRM Tasks 1, 2, 3; federal, state and local funds
Objective 4a	Federal, state and local funds
Objective 4b	Federal, state and local funds
Objective 4c	Federal, state and local funds

VI. Guidance for Oregon Local Districts in Preparing a Technology Plan

The document assumes there is work underway in instructional and administrative applications of technology in each local district. This model allows each Oregon district to recognize prior work.

The planning process, team building and resulting plan will support the consolidated district improvement plan draft. Local technology plans may be developed for individual school districts or consortia of school districts through an ESD. Table 1 provides one possible model for the process of educational technology planning. A progression of tasks are outlined on the model: evaluation of impact, getting started, initiating technology planning activities, assessing current status of education technology programs, identifying goals in support of school improvement, analysis and design of technology support, and developing action plans for implementation.

Many resources already exist to help school districts and consortia meet the tasks outlined in the model. Some resources and their locations on the world wide web are referenced on the model.

Table 2 provides a checklist to identify who is responsible for each task, and the timeline and resources required. A suggested Table of Contents for a Local Educational Technology Plan is presented in Table 3. Table 4 lists the components of a long-range plan qualifying for the Technology Literacy Challenge Fund (PL 103-382, 20 USC 6845). Districts should feel free to reproduce, use, and adapt Tables 1 - 3 to meet the local needs.

Sample district and school technology plans are available on the world wide web at the address below. For more information on Technology Planning and Meeting the Technology Literacy Challenge in Oregon, see http://www.ode.state.or.us or call Kathleen Heide at (503) 378-3310 x482.

- **Table 1**

District Education Technology Planning Model to Support the District Improvement Plan

Continued on next page⇒

Phase 1 Monitor and Evaluate the Plan	Phase 2 Getting Started	Phase 3 Identify Mission and Tasks	Phase 4 Assess Current Status of Educational Technology Programs
1.1 Establish a process for continuous monitoring of the implementation of action plan and evaluation of impact of technology integration.	2.1 Secure the support and commitment of local education leaders.	3.1 Develop the educational technology mission and vision statements with team.	4.1 Assess the technology skills, knowledge and attitudes of staff and students.
1.2 Establish an ongoing communication process with stakeholders and public.	2.2 Identify and secure support of local community stakeholders.	3.2 Develop an ongoing public information and awareness plan for communicating with stakeholders.	4.2 Develop inventory of software, hardware, facilities and network capacity to provide information for ongoing decision-making.
1.3 Develop an ongoing process for incorporating evaluation information for planning.	2.3 Establish technology planning team with broad-based stakeholder representation.	3.3 Share educational technology mission and vision with stakeholders.	4.3 Review existing educational technology initiatives and assess curriculum strengths and challenges in relationship to district improvement plan.
	2.4 Clarify how technology practices can support student learning, school and district improvement plans.	3.4 Identify tasks, timelines and responsibilities for planning team.	4.4 Assess existing professional development activities and structures in support of technology integration.
	2.5 Orient team to overview of planning process, identify leadership roles, and focus groups and planning subcommittees.	3.5 Establish internal communication process among subcommittees and other groups engaged in activities related and relevant to technology planning.	4.5 Assess current technology support staffing.
	2.6 Research, describe, and demonstrate existing emerging technologies to team and stakeholders.	3.6 Identify potential community resources, partnerships, and funding sources.	4.6 Identify expenditures for technology for past two years.

Adapted from Wisconsin Educational Technology Plan PK-12. Wisconsin Department of Public Instruction, December 1996.

Phase 5 Identify Goals in Support of District Improvement Plan	Phase 6 Analyze and Design Technology Support	Phase 7 Develop Action Plans for Implementation
5.1 As part of the district improvement plan, determine and prioritize technology goals for improving administrative management effectiveness.	6.1 Determine instructional, administrative and communication software requirements.	7.1 Develop action plan (activities, leadership, timelines, technology support, policy, budget) for administrative and management goals.
5.2 Determine and prioritize communications and information access goals for improving technological support of teaching, learning and classroom management.	6.2 Determine hardware, facilities and network (voice, video and data) standards and requirements.	7.2 Develop action plan for communications and information access goals.
5.3 Determine and prioritize the use of technology to support Oregon's rigorous academic standards.	6.3 Determine strategies for operations, maintenance and upgrades.	7.3 Develop action plan for instructional and curricular goals.
5.4 Determine and prioritize professional development goals based upon student and staff technology skills.	6.4 Determine effective models for professional development in technology to support district improvement plans.	7.4 Develop action plan to align professional development goals.
5.5 Identify strategies for aligning technologies with goals.	6.5 Determine human resource organizational structure for implementation of identified goals.	7.5 Develop action plan for securing additional human resources in support of identified goals.
5.6 Report preliminary goals to stakeholders and public and explain how technology will support implementation of the district improvement plan.	6.6 Plan strategies to implement administrative, communications and instructional aspects of plan.	7.6 Develop the budget and plan to secure funding for plan implementation.

- **Table 2**

Task No.	Task Description	Person(s) Responsible	Start Date	Finish Date	Resources Required
Phase 1	**Monitor and Evaluate the Plan**				
1.1	Establish a process for continuous monitoring of the implementation of action plan and evaluation of impact of technology integration.				
1.2	Establish an ongoing communication process with stakeholders and public.				
1.3	Develop an ongoing process for incorporating evaluation information for planning.				
Phase 2	**Getting Started**				
2.1	Secure the support and commitment of local education leaders.				
2.2	Identify and secure support of local community stakeholders.				
2.3	Establish technology planning team with broad-based stakeholder representation.				
2.4	Clarify how technology practices can support student learning, school and district improvement plans.				
2.5	Orient team to overview of planning process, identify leadership roles, and focus groups and planning subcommittees.				
2.6	Research, describe, and demonstrate existing emerging technologies to team and stakeholders.				

Adapted from Wisconsin Educational Technology Plan PK-12. Wisconsin Department of Public Instruction, December 1996.

Task No.	Task Description	Person(s) Responsible	Start Date	Finish Date	Resources Required
Phase 3	**Identify Mission and Tasks**				
3.1	Develop the educational technology mission and vision statements with team.				
3.2	Develop an ongoing public information and awareness plan for communicating with stakeholders.				
3.3	Share educational technology mission and vision with stakeholders.				
3.4	Identify tasks, timelines and responsibilities for planning team.				
3.5	Establish internal communication process among subcommittees and other groups engaged in activities related and relevant to technology planning.				
3.6	Identify potential community resources, partnerships, and funding sources.				
Phase 4	**Assess Current Status of Educational Technology Programs**				
4.1	Assess the technology skills, knowledge and attitudes of staff and students.				
4.2	Develop inventory of software, hardware, facilities and network capacity to provide information for ongoing decision-making.				
4.3	Review existing educational technology initiatives and assess curriculum strengths and challenges in relationship to district improvement plan.				
4.4	Assess existing professional development activities and structures in support of technology integration.				
4.5	Assess current technology support staffing.				
4.6	Identify expenditures for technology for past two years.				

Task No.	Task Description	Person(s) Responsible	Start Date	Finish Date	Resources Required
Phase 5	**Identify Goals in Support of District Improvement Plan**				
5.1	As part of the district improvement plan determine and prioritize technology goals for improving administrative management effectiveness.				
5.2	Determine and prioritize communications and information access goals for improving technological support of teaching, learning and classroom management.				
5.3	Determine and prioritize the use of technology to support Oregon's rigorous academic standards.				
5.4	Determine and prioritize professional development goals based upon student and staff technology skills.				
5.5	Identify strategies for aligning technologies with goals.				
5.6	Report preliminary goals to stakeholders and public and explain how technology will support implementation of the district improvement plan.				
Phase 6	**Analyze and Design Technology Support**				
6.1	Determine instructional, administrative and communication software requirements.				
6.2	Determine hardware, facilities and network (voice, video and data) standards and requirements.				
6.3	Determine strategies for operations, maintenance and upgrades.				
6.4	Determine effective models for professional development in technology to support district improvement plans.				
6.5	Determine human resource organizational structure for implementation of identified goals.				
6.6	Plan strategies to implement administrative, communications and instructional aspects of plan.				

Task No.	Task Description	Person(s) Responsible	Start Date	Finish Date	Resources Required
Phase 7	**Develop Action Plans for Implementation**				
7.1	Develop action plan (activities, leadership, timelines, technology support, policy, budget) for administrative and management goals.				
7.2	Develop action plan for communications and information access goals.				
7.3	Develop action plan for instructional and curricular goals.				
7.4	Develop action plan to align professional development goals.				
7.5	Develop action plan for securing additional human resources in support of identified goals.				
7.6	Develop the budget and plan to secure funding for plan implementation.				

• Table 3

Sample Table of Contents for a District Educational Technology Plan Adapted from Wisconsin

Executive Summary

Introduction
Overview of the relationship between the District Technology Plan and the Consolidated District Improvement Plan.

1. **Monitoring and Evaluation of the Educational Technology Plan**
   - 1.1 Monitoring and evaluation process
   - 1.2 Incorporation of evaluation information for ongoing planning and integration with district improvement
   - 1.3 Process for reporting to stakeholders
   - 1.4 Process for timeline for ongoing, long-term planning

2. **Background Information**
   - 2.1 School/district and community demographics
   - 2.2 Overview of educational technology planning process
   - 2.3 Educational technology planning team, members' titles, district or ESD administrator to whom committee reports, and site council liaison with each school
   - 2.4 Stakeholder and community resources
   - 2.5 District educational technology vision and mission statements

3. **Current Status**
   - 3.1 Assessment of student and staff technology skills, knowledge and attitudes
   - 3.2 Inventories
     - _Software
     - _Hardware
     - _Facilities
     - _Networking and telecommunications capacities
   - 3.3 Current status of applications of technology to support Oregon's rigorous academic standards and the Consolidated District Improvement Plan
   - 3.4 Review of existing professional development activities and structures
   - 3.5 Assessment of current educational technology support staffing

4. **Applications of Educational Technology in Support of District Improvement Plans**
   - 4.1 Administrative and management support
   - 4.2 Communication and information access support
   - 4.3 Instructional and curricular support
   - 4.4 Professional development support

Adapted from Wisconsin Educational Technology Plan PK-12. Wisconsin Department of Public Instruction, December 1996.

• Table 3 (continued)

5. **Technology Design**
   - 5.1 Software priorities
     - __Instructional and curricular
     - __Communications and information access
     - __Professional development
     - __Administrative and management
   - 5.2 Hardware, facilities and network priorities
     - __Hardware: workstations and peripherals
     - __Facilities: network design
     - __Building and classroom wiring: standards
     - __Implementation issues
     - __Operations, maintenance and upgrades priorities

6. **Educational Technology Implementation Action Plan (Leadership, Activities, Timeline, Policy, Budget)**
   - 6.1 Software procurement
   - 6.2 Hardware, facilities and network acquisition/implementation
   - 6.3 Operations, maintenance and upgrades
   - 6.4 Professional development
   - 6.5 Additional human resources in support of technology
   - 6.6 Funding sources
   - 6.7 Budget summary

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• **Table 4**

COMPONENTS OF A QUALIFYING LONG-RANGE PLAN
PL 103-382, Sec. 3135, 20 USC 6845

1. A description of the type of technologies to be acquired, including specific provisions that assure components of such technologies will work compatibly and, to the extent practicable, also be compatible with existing technologies.

2. An explanation of how the acquired technologies will be integrated with the curriculum and Oregon Content Standards to help the district or consortium enhance student achievement.

3. An explanation of how programs will be developed in collaboration with existing adult literacy services providers to maximize the use of such technologies.

4. A description of how the district or consortium will ensure ongoing, sustained professional development for teachers, administrators, and other staff, e.g. counselors, school library media personnel, instructional assistants, Title I coordinators served by the district or consortium to further the use of technology in the classroom or library media center.

   Reference local resources for ongoing training and technical assistance available to schools, teachers and administrators served by the district or consortium in addition to those provided on a regional scale, such as state technology offices (e.g. Oregon Department of Education and Oregon Public Education Network), education service districts, regional educational laboratories (e.g. Northwest Regional Educational Laboratory) or institutions of higher education.

5. A description of the supporting resources, such as services, software and print resources, which will be acquired to ensure successful and effective use of technologies acquired under this section.

6. The projected timetable for implementing such plan in schools.

7. The projected cost of technologies to be acquired and related expenses needed to implement such plan.

8. A description of how the district or consortium will coordinate the technology provided with other grant funds available for technology from state and local sources.

9. A description of how the technology plan will support the goals and strategies identified in the District Improvement Plan.

10. A description of how the plan will be monitored and updated.

APPENDICES

APPENDIX A	Oregon Senate Bill 994 - Information Technology Policy
APPENDIX B	Oregon Benchmarks
APPENDIX C	ORS Chapter 329
APPENDIX D	Oregon Common Curriculum Goals, Content Standards and Performance Standards
APPENDIX E	1992 Technology Plan—*The Role of Technology: A Plan to Support ODE and the 21st Century Schools*
APPENDIX F	1994 Goals 2000 Technology Plan
APPENDIX G	OPEN System Description and Technology Sub-Committee Report
APPENDIX H	OITC Description
APPENDIX I	Action Plan in Technology/Distance Education PASS Project Descriptions School-to-Work Opportunities
APPENDIX J	Fast Packet Contract
APPENDIX K	Implementation of Telecommunications Act in Oregon
APPENDIX L	Innovative Engine Competition
APPENDIX M	TigerNet Model